DOCUMENT RESUME

ED 446 030 SP 039 460

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TITLE How Does Research Affect Pre-Service Students' Perceptions of Their Practice?
PUB DATE 2000-04-25
NOTE 20p.; Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 24-28, 2000).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Attitude Change; *Educational Research; Elementary Secondary Education; Foreign Countries; Higher Education; Inquiry; Preservice Teacher Education; *Student Research; *Student Teacher Attitudes; Student Teachers; Theory Practice Relationship
IDENTIFIERS England

ABSTRACT

This study examined how preservice teachers perceived the research element of their undergraduate education, collecting data from two student cohorts in their final year (109 students during the 1997-98 academic year and 140 during the 1998-99 year). Researchers examined how students felt about the program strand designed to enhance their understanding of the use of research in relation to teaching. Three research units (Critical Reading of Research, Preparation of a Research Proposal, and Individual Inquiry) spanned the general commitment to educational research and students' subject specialization. Data collection included student surveys, interviews with five students, a focus group to test emerging interpretations, and focused interviews with seven students to explore their perceptions of the research role in relation to their professional identities. Most respondents perceived research as a vital aspect of their teaching practice. Students tended not to have a clear conception of the theory-practice relationship. All students mentioned the significance of choice in the research units. Students all cited direct implications of their research for their work as teachers and emphasized the need to take an inquiring stance toward teaching. An appendix presents a summary of the individual profiles for 1998-99 interviewees. (Contains 21 references.) (SM)

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How does research affect pre-service students' perceptions of their practice?

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Paper presented at the annual meeting of AERA

New Orleans

April 25th, 2000

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Introduction

In this paper we report on a study of how students training to be teachers perceived the research element of their undergraduate education. We collected evidence from two cohorts of students who were in their last year of a three-year Bachelor of Arts degree leading to qualified teacher status. When the students successfully complete this programme they are qualified to teach in primary schools where the children are aged 5 to 11 years. Data were collected from the first cohort during the 1997-98 academic year and from the second during the year 1998-99. There were 109 students in the first cohort and 140 in the second. The focus of our enquiry was the strand of the degree programme explicitly designed to enhance their understanding of the use of research in relation to teaching.

The focus of the enquiry and its context

We wanted to find out how students thought and felt about their experience of this strand and how far they perceived it as having an effect on their approach to their practice as teachers. The roles allocated to research within teacher education programmes reflect differing underlying views of teaching and of how students should be inducted into their profession. We identify three distinct approaches to teacher development and the place of research in order to describe the approach of the course and of the authors. The three approaches are labelled, *separation*, *application* and *inquiring*.

Those who take the approach of *separation* view research and teaching as separate worlds. Research is conducted by academics and has little direct relevance to classroom practice. The accompanying model of pre-service teacher education stresses craft skills but gives little explicit attention to research. Such a view is echoed within the teacher education community in England wherein many institutions have given a low priority to research activity, seeing it as involving a move away from the practical, school-centred world of primary teacher education and the immediate needs of children, teachers and students. In a study of the way primary teacher educators perceived their relation to research Murray (1998) confirmed this as a pervasive view.

> All the interviewees see a dichotomy between teaching and research. ITE [Initial Teacher Education] is constructed as a professional, practically oriented, activity … whereas research carries negative connotations of autonomy and engagement with a stereotypically academic world, divorced from the day to day practice of teaching. (p152)

For those whose approach is that of *application* research findings are seen as relevant to teaching where they have direct implications for practice. The worlds of teaching and research are (or should be) distinct but related. Researchers are expected to find solutions to educational problems and teachers to apply the solutions. Advocates of this position tend to lament the poor state of educational research and accuse researchers of failing to produce clear answers to practical, professional questions. Teacher education programmes taking this stance are likely to cite research in order to

provide authority for particular teaching practices or learning theories. They may seek to provide students with access to recent findings (DfEE 1998a). The Literacy and Numeracy Strategy of the present UK government uses research in this way (DfEE 1997, DfEE1998b, DfEE 1998c, DfEE 1998d.)

The third approach we have labelled *inquiring*. This rejects the view that practice can be a straightforward application of research findings, a technique, but sees it as involving an enquiring approach to one's own teaching, informed by engaging critically with what others have found. The corresponding view of pre-service education is conveyed by Lauralia and Syrjälä (1995) who explain how in Finland the students' programme includes research studies, 'because it is believed that they should be educated so they can use research wisely and can improve their teaching by doing research.' (p101). Van Zee (1998), reporting a programme she designed to foster elementary students' research on their science teaching practices, shows how this belief can be implemented within specific subjects or across a programme. Fueyo and Koorland (1997, p337) propose 'weaving the strand of teacher as researcher throughout preservice teacher preparation programmes', basing it on research findings and inquiry-oriented teaching, incorporating action-research and teaching research strategies.

It will be clear from this paper that we espouse the third approach and tried to base our teaching and the students' learning on those principles. However opportunities to 'weave the strand of teacher as researcher' through the programme were constrained by the political context of teacher education in which we worked. In England at the present time the curriculum of pre-service teacher education is tightly controlled by central government. The regulations governing the approval of courses at the time of planning this degree established that they should be competence based (DFE, 1993). Subsequent versions have tightened the central control. A comprehensive set of standards is specified (DfEE, 1998a) and institutions are required to ensure that every student is assessed against those. Compliance with these standards is checked through frequent inspections and if an institution is deemed not to be meeting those standards then their student numbers will be reduced and ultimately their right to prepare pre-service teachers could be withdrawn. The reforms which introduced this control explicitly aimed to replace education with training (OFSTED, 1995). In the discourse of these reforms the vague concept of the reflective and autonomous professional is replaced by the transparent and definable concept of an effective and compliant employee.

However there are other officially sanctioned messages (Hargreaves 1996) that enjoin the profession to improve its standards by learning from the medical model and ensuring that teachers' educational practice is informed by research, arguing for evidence based practice. There are for example, in the listed standards, references to the need for newly qualified teachers to be able to access and use the results of educational research (DfEE, 1998a). More significantly resources have been made available for two pilot studies where serving teachers are enabled to conduct small scale school based studies (TTA (2000); DfEE 2000).

Nevertheless the need for compliance to detailed, externally imposed standards and the internal University requirement for a unitised programme made it more difficult to experiment with the curriculum and introduce a coherent enquiry based curriculum.

The students and their programme

The students who were the subject of this enquiry were taking the three-year course leading to a Bachelor of Arts (Primary Education) with qualified teacher status. As with all such courses in England at least 18 weeks of their time had to be spent in school. This time was organised in a variety of ways but for a large part of it the student took responsibility for teaching a whole class, chiefly in block placements of several weeks each year. In the first two years all students followed a common programme but at the end of the second year they opted to specialise in one of six curriculum subjects. These were Design and Technology (D&T), History, Science, Mathematics, English or Geography. This was intended to prepare the students to be able to take responsibility for that subject in primary school later in their career. Students already had some advanced qualification in their specialist subject gained from their previous school studies. In the third year of the degree one unit was designed to deepen their subject and pedagogical content knowledge. The curriculum of the students is organised into units of learning each carrying a number of credit points. Three compulsory units are specifically devoted to research skills and understanding. We designed the research units to span the general commitment to educational research and the subject specialisation of students. The work that they did for the research units was related to teaching and learning in that subject. There were shared lectures and common content across the subjects but their supervising tutor had specialist expertise in the subject.

The students began on the first research unit, 2.8 Critical Reading of Research, in the final two weeks of their second year. They continued almost immediately they returned after the summer break in October with unit 3.5, Preparation of a Research Proposal. They then went into schools for their final teaching practice (practicum) and as soon as they returned from that they began unit 3.6, Individual Enquiry, which took them to the end of their third and final year (figure 1).

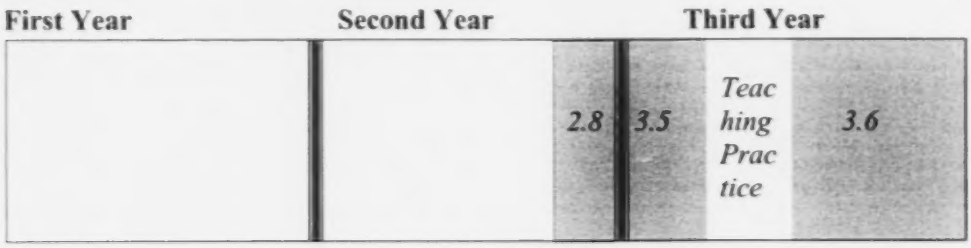

Figure 1. Sequence of the research units

The research units are placed late in the course, after students have had two thirds of their placement time in schools, and we can assume that they pick up messages about the place of research in relation to their practice.

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Unit 2.8 aimed to orient students to the idea of research based professional practice and in so doing to argue the case that being a systematic, careful and scrupulous enquirer is a necessary part of their professional identity. We deliberately used the term 'scientist' to describe this role. We explained that this use was intended to be inclusive of different views of the nature of science (contested as they are) and of different approaches to the study of human behaviour. A teacher who takes seriously the adoption of such a role will necessarily seek to position themselves in relation to these debates about science and the production of knowledge. Consequently the difficulties with the concept of truth and the achievement of knowledge were addressed and the variety of solutions posed to these difficulties were noted.

We judged that the students' starting point should be to learn how to read research critically, but in a constructive and appreciative way. Unit 2.8 was designed to help them to do this by providing the opportunity to engage in an intensive and structured way with a research paper. Following introductory lectures they were given tasks in their subject groups that required them consecutively to examine and understand the content, to consider the acceptability of the claims and arguments in the paper and, finally, to make a judgement as to how worthwhile they thought the paper to be. We called this a guided read. Subsequently they applied this process to reading a research paper in their own subject specialism, chosen from a selection of articles provided by the tutor who mapped out the research issues in the subject area. Literature search techniques and resources were introduced. Methodology, methods and the ability to read critically were discussed in this context. It was stated as a guiding pedagogical principle of the unit that learning and the generation of knowledge is a social, collaborative activity. Dialogue was therefore an indispensable way of engaging fruitfully with the research. We required students to work in collaborative groups where together they were responsible for the preparation of a report about the paper to another group of fellow students. On presentation of the report they were required not only to explain and justify their judgements but to structure discussion around the issues with their audience. They were assessed individually on the quality of their critical appreciation of the paper as evidenced in the presentation.

In the second and third phases, units 3.5 and 3.6 respectively, students designed a small individual school based research project and carried out that enquiry. The focus of the enquiry was within their subject specialism. The assessed outcome of unit 3.5 was a proposal from each student for their individual school based enquiry. Over a period of five weeks the students were given five one hour lectures to supplement their own reading on research methods such as interviewing, questionnaire design, classroom observation, the ethics of research and basic statistics. At the same time they had three individual tutorials about their research proposal. They were required to submit their proposal in a given format which included a basic literature review. They were encouraged to meet in peer support groups and were required as part of their assessment to present their plans for their proposal to a group of fellow students for discussion.

Unit 3.6 was assessed by their 5000 word research report on the results of implementing their research design proposed in 3.5. In many cases this design was amended significantly when they revisited it after their teaching practice. The students were again encouraged to meet in peer support groups. No presentations or other forms of dialogue were required. They were able to have three individual tutorials

with the subject tutor who would be marking their individual enquiry. There was input on how to write up their work and a format was suggested and explained.

Throughout it was our aim to emphasise:

- the students' responsibility for making judgements about literature and research aims and methods
- the need to talk with others about their ideas
- the need to be systematic, scrupulous and careful
- the need to link the results of their enquiry to classroom practice
- the metaphor of research as contributing to a conversation
- the problematic nature of knowledge, evidence and truth.

Methodology

In this study we investigated how students felt and thought about the strand of research in their programme. To do this we wanted an overview of the students' responses but also detailed individual accounts of personal experiences and how these related to their perceptions of their practice as beginning teachers. This data was collected toward the end of their programme when they were about to qualify and take up teaching posts. At this point we were able to explore how far the research role was experienced as 'a way of knowing about teaching that might extend across their professional life span' (Cochran-Smith and Lytle, 1999, p17).

The sequence of data collection was as follows;

- at the end of the programme in 1997-98 a questionnaire was given to all students, followed by individual interviews with five students.
- toward the end of 1998-99 we ran a focus group during unit 3.6 to test emerging interpretations and to identify issues for further exploration.
- at the end of 1998-99 we carried out focused interviews with seven students to explore their perceptions of the research role in relation to their professional identities.

During 1997-98 we administered an anonymous questionnaire at the end of the third year when the students were about to hand in their completed reports. Eighty five students (77% of the cohort) returned the questionnaire. We invited students to volunteer to be interviewed individually to provide an in depth picture of particular people's perceptions. Fourteen students volunteered and we were eventually able to interview five of these. The interviews were semi-structured and focused on their perceptions of the work in the units and the place of research in their and other teachers' practice. They were taped and transcribed.

During 1998-99 we invited 12 of the students to be a focus group aimed at identifying aspects of students' perception of the units. The sample was selected by counting at regular intervals down the mark list of all students, excluding any who had assignments to complete or repeat. One of the 12 declined to join. The group contained students from all the subject specialisms, with a range of marks on the research units 2.8 and 3.5. This focus group met at the stage when students were beginning their school based enquiry in unit 3.6. We explained that the function of the group was for us to seek their views and to direct our attention to issues we should explore. It alerted us to issues such as opportunities for listening to pupils afforded by

the research role, views about choice and relationships to the literature in their subjects, and attitudes to the authority of published work. We invited a sample of students to be interviewed individually after they had finished the unit and were about to qualify as teachers. The students interviewed included males and females who had entered the programme from differing backgrounds and who were specialising in various subjects. Seven students were interviewed following the same format: an initial phase encouraged students to talk about their perceptions of themselves as prospective teachers, their identities, intentions and influences in their life history; a second phase focused upon their experience of engaging with research through the units; a third phase exploring any impact that experience might have had on their view of themselves as a teacher and on their intended practice as a professional. The interviews were taped and transcribed. When analysing these we sought to bracket our interpretations from the earlier data and to read them empathetically, focusing upon the individual's experience of research in relation to becoming a teacher.

Findings

Questionnaire

The 1997-98 questionnaire was useful for the evaluation of the units and for indicating things that we might change or retain in the organisation and structure. For example the responses provided evidence for the benefits of the peer support systems and of the presentation, and for critical reading as an effective means of orienting students to educational research. In relation to the focus of this paper four questions sought students' intentions toward research as an element in their future practice as teachers. The results from those are given in Table 1.

Table 1 Questionnaire Responses on intentions for research activity as a teacher

Statement	strongly agree	agree	disagree	strongly disagree	Unsure answer
Reading research will be vital in helping me to be a good teacher	9	64	10	1	1
Conducting my own research project(s) will be vital in helping me to be a good teacher	8	56	19		2 *
I expect to read research when I am an experienced teacher	16	63	5		1
I expect to conduct my own research project(s) when I am an experienced teacher	3	45	29	1	7 *

*several students added comments to their responses to draw attention to the uncertainty about whether there would be time or opportunity to do research when they were teaching

Four things are clear from the results shown in Table 1.

- a large majority of the 85 respondents indicated that they perceived research as a vital aspect of their practice as a teacher
- a large majority expected to read research when in a teaching post
- a smaller majority expected to conduct their own research as a teacher
- accessing the research reports of others was thought more likely to take place than doing research themselves.

Their level of expressed support for research as an ingredient in future practice was surprising to the authors given the emphasis on subject knowledge, craft skills and classroom performance in the standards that they had to meet to qualify for their profession. We do not know how positive these students were towards research at the beginning of the units and the questionnaire data only gave us an overview of their opinions expressed at the end of the programme. However the interviews provided insights into the way research might have affected the perceptions of students towards their practice. It is to these that we now turn.

Interviews with first cohort

The students whom we interviewed from the 1997-1998 cohort included Christiana who was very enthusiastic about her research, which she subsequently published, and Rachel who rejected its place in teaching ('it worries me that we're being told that to be a good teacher you have to be a good researcher and I think that's rubbish.'). They had all found the guided reading an enabling process, and for some it was revealing.

> *I think I'm a bit naïve sometimes. I couldn't understand why people would want to question others' opinions. I thought 'well just take it that that's what they thought and that's true', but I understand that when you start looking deep into it it's not lies you're looking for it's things like - well 'is it a fair sample of people?' that sort of thing. So that's when it started to make sense.* (Janine)

The impact of conducting their personal enquiry depended partly upon the success they had and, it seemed, the extent to which they were able to pursue their own ideas. The more successful, independent learners rated the sense of ownership and the opportunity to choose very highly.

> *I've enjoyed them, they've been different to the other units in that more emphasis has been put on you I think to sort of come up with your own stuff, certainly in the last two* (Peter).

On the other hand Donna, who was worried about whether her report would pass, said

> *I tend to be a person who, if somebody tells me something I'll research around it to look for the validity but on day to day matter of fact things I just take what's said, unless it interests me, I don't go chasing into every little detail so finding a question of my own I found difficult.*

When asked about the possibilities of conducting research as practising teachers the interviewees mainly spoke of taking an enquiring approach to their teaching rather than systematic research. Even the most enthusiastic noted the constraints that they would meet.

> *You try out ideas and if it works you take it on board or alter it a bit and so that's a form of research. But actually doing research that has been as planned and structured as this has been ... I would like to say 'yes' but I think when I'm in full time teaching I think it's going to be doubtful because of time...* '(Christiana).

Interviews with second cohort

We read all the1998-99 transcripts and analysed each in turn to produce individual profiles that related to their experience of the research and their identity as a teacher. Condensed versions of those profiles are in Appendix 1.The overall impression was of beginning teachers with distinctive images of themselves as teachers which related to their life histories.

All the students spoke about the significance of choice in the research units. This was not just because it gave them some options and a sense of ownership, but also because they valued the chosen topic as something derived from a personal commitment connected to their identity as a teacher, often reflecting a longer term interest. For example, the research strand was 'way more satisfying' for Adam than other units because the enquiry topic was a personal choice. It dealt with values and attitudes to third world countries which were linked to his view of what being a teacher entailed. The topic that Katy chose for her enquiry (reading strategies for bilingual pupils) grew out of an area in which she had long been interested, following her experience of teaching before joining the programme. It became focused as she reviewed literature and listened to children on teaching practice. For Jacky the enquiry was the vehicle for work that mattered to her construction of herself as a teacher.

> *I got to go into schools I really wanted to go into and I was doing something I was really interested in (Special Education) and something that would be of help to me when I eventually started to teach so it was great ... I loved it*

Being in the role of researcher had provided an opportunity, and in most cases a necessity, for close focussed observation of children which had not occurred elsewhere on the programme. During their inquiry they were in a different relationship to pupils than they had been on their teaching practices. For some students this had opened their eyes to the potential of pupils.

> *I was quite surprised at how much I didn't listen to children and it was only when I transcribed the tapes that I realised ... I think I probably appreciate now that children have a lot more to say* (Adam)

Beverley gave a long account of how she had learnt that

> *small children can evaluate their work and they do and actually they were very much more involved in the process of making than I imagined that they would be ... these were the things that made me think 'oh yes I am really seeing what's happening here' because when you're flying round the classroom you can't pick those sort of things up.*

The structured reading and support had made them aware of what was available, how to read it critically and how to use it in conjunction with their empirical work. For some students their personal relationship with knowledge had been altered. Beverley said that the guided reading of articles 'kind of demystified it for me'. Adam described how 'suddenly this year I discovered there's this whole world of academic research. It's incredible the amount of knowledge that's out there'. At the end of the interview he wanted to point out how information technology was making that

knowledge available to students and how he had e-mailed a researcher to get a paper. Jacky said

> *that was the first time I'd used a journal in the library and it was great because there were so many people saying things, because they were mostly teachers writing them and things like that, and they were saying things which I thought 'oh yeah, I agree with that' or 'where did he find that, I don't think that's right' you know, I was able to sort of compare it to what I knew.*

When they talked about the relationship between their experience of research and their perceptions of practice, each student cited some specific direct implications for their work in the classroom, for instance Katy said

> *it made me think about the way I'm going to approach reading as a teacher... implications for teaching, when I go into the classroom, the kind of texts that I look for, the amount of time that bilingual children need for me to be able to hear them read*

They also emphasised how it had highlighted the need to take an inquiring stance toward teaching. Paul explained how the findings of his enquiry about pupils' perceptions of photos in geography had immediate implications for his practice in choosing and presenting resources but that it had also made him aware of his biases. Later in the interview he talked about how all teachers have to reflect as they evaluate lessons.

> *but I think sitting down in a research sense, I think most teachers won't do that because there's no need to do it, or is there, I don't know? It would be nice to think that we had the time and sort of reasons for reflecting deeply on different subjects when you're a teacher.*

Carol said that the process of investigating in the classroom and testing ideas had immediate relevance 'because when I go into the classroom I'll be doing things like that every day'. She described the overall impact of the research on her as

> *being critical really ... whatever you see just being critical of it ... that might not happen every time. I think sometimes you go in there and teachers have so much to do that I think you see things and think of that as gospel all the time but I think it's just being able to reflect on what you've seen and just be critical of it.*

Apart from Jacky they all anticipated reading as featuring in their future practice: 'I've learnt that from this as well … I think you've got to … its the only way to do it' (Sarah). 'I would hope … unless I'm very cynical'(Beverley). Some of them mentioned a lack of appropriate research reviews for teachers. Jacky said she would only read teaching magazines and was unlikely to go the library again and research 'unless it was something another teacher had written' but she did think 'it's important to go to other schools and see other practice'. The students were very conscious of the constraints that there would be on conducting any sort of research as they joined the teaching profession. Time and the pressures of the job were seen as limiting their opportunities to seek evidence on which to base their practice.

Discussion and implications

The question this paper attempts to answer is 'How does taking on the role of researcher affect the intentions of pre-service teachers with regard to practice?' We turn now to consider what we mean by practice and what might affect intentions towards it. In the light of that we then discuss some of the themes to be found in the students' responses.

In the transcripts of the conversations with students there is some evidence of what may be different understandings of the term practice. In the interviews they often cited ways in which their inquiry had affected how they would teach aspects of their specialist subject, and in some cases had made them rethink ends as well as means (see Appendix 1). The students in the focus group had just finished their final teaching practice in schools. When we asked how far the research units up to that point had 'affected their practice, their teaching', some seemed to interpret this in terms directly related to their last time in school. The use of the past tense in the final comment in the following response suggests this.

> *A lot of presentations were useful. We had a quite a few to do with gender and sexist issues. They were quite useful. It made you think...about your approach, but I don't really think as far as teaching, I don't really think it was affected.*

This may simply have been an instance of miscommunication in the context of the conversation in the focus group. Alternatively it may be that, for some students, a significant underlying conception of the way that practice is affected by other things (including research) is that it must be direct, evident and close in time. There are links between this conception and the calls for research to be relevant, visibly effective and of immediate use to teachers.

Even if this conception is not held it may be that students have no other clear conception of the relation of theory and practice (to use an inadequate shorthand). This is crucial to the way newly qualified teachers will relate to research and other resources that can support or provoke reflection as they develop professionally. It may be that the research units 2.8, 3.5 and 3.6 should more explicitly provide alternative models of this relation. As van Maanen (1999) points out the term 'practice' is used in many senses, ranging from an emphasis on the 'practical' or 'application of theory' to a more weighty notion that includes less tangible things such as preferred ways of acting, knowledge traditions and tacit knowledge. He argues that it is rarely systematically theorised.

Underlying the planning and teaching of these units was the authors' own conceptualisation of practice and the way in which practice can be affected. We believe that the practice of any individual teacher is a complex communal and personal achievement. It is affected by a variety of factors. These include the discourses and traditions that shape the thinking and behaviour of teachers in schools. Also included are the effects of an individual's biography and present social location. The resources for maintaining and developing one's educational practice are provided through craft, scientific, and moral traditions and through the individual process of

meaning making. It is a matter of continual social construction (Coldron and Smith, 1999)[1].

We consequently characterise changes in 'attitude' or 'approach' as taking up different locations in professional space. We have applied this spatial metaphor to the professional development of teachers in previous papers (Coldron and Smith 1999; Smith and Coldron 1999). To change position in relation to other possible professional positions is to adapt and develop one's identity as a teacher and implies changed perception of everything to a greater or lesser extent. Nothing is quite the same again. It is a holistic conception of learning and development that sees effects as oblique, happening over long periods of time and as being profound. It also means that a large variety of fields of activity are relevant to professional practice, not just those explicitly and obviously directed to classroom activity.

There were illustrations of this kind of learning. For instance, during the focus group meeting one student gave an eloquent account of a connection for her between, reading, her attitudes and her practice. At the time the comment was recorded she was engaged in her individual school based enquiry. Her research focus was how far the History National Curriculum of England and Wales appropriately teaches about ethnic origin. She explained that this was prompted by reading a research article reporting conversations with adults from a variety of ethnic minority communities about how they were taught history at school. This in turn made her reflect on (in the sense of looking back at something with new eyes and new questions) how she had taught about the Victorians on her first teaching practice in a class with children of diverse ethnic origins.

> *It* (the research paper) *made me think about how they saw the history of that time from a sort of white, pre-dominantly middle class sort of image.*

Several comments seem appropriate about this student. There was clearly a motivation prior to the research exercise to enquire into this issue. In the subsequent interview she spoke of how she had begun to think about these issues when working as a nursery teacher prior to starting the course. This contributed to a vague sense of discomfort, something about the experience of teaching in that way in those circumstances that she felt was not quite right, which created a dissonance she felt needed to be satisfactorily resolved. Teachers often direct their professional development by investing specific moments of their professional lives with a symbolic (exemplary) function (Macdonald 1991). They serve as labels of feelings that are not articulated or analysed but which nevertheless help the teacher decide how to act. In this case it seems such a feeling provided the motivation to enquire further. In the process of research she had gained more elaborate ways to describe an identity and position she does not want to take up, namely a teacher who teaches from a 'sort of white, predominantly middle class sort of image' and she would necessarily gain a positive identity in opposition. This gave a means of partially resolving her earlier feelings of dissonance and discomfort. It also caused her to think about the delicacy of responding to pupils' ideas which are reflections of their parents' views and how she would deal with this in her practice as a teacher. In this example we see the interaction between political/moral dispositions, moments of practice made

meaningful and resources that became available through taking on the role of researcher.

Another way in which some students reported considerable change, but where the extent to which it affected practice is difficult to judge, is their relation to research texts. The first unit was aimed specifically at enabling the students to read texts critically but appreciatively. There are many references to this unit in the transcripts and questionnaire responses and about the effect it had on them. The gist of most of these responses is captured by the following comment from a student in the focus group.

> *It's made me question other people's work more as well because if you were looking at perhaps a research paper for an essay, well I suppose you would question it, but not as much as I would now. You'd just sort of believe almost what they say because it's there in print. Question it slightly but not have any sort of methods of questioning it. But now I might think, 'Well, they only did it with that sort of group', which probably I wouldn't ever have picked out before...Just because they've had it published and printed doesn't mean it's gospel.*

What is the significance of this? In effect the mystique of research, researchers and research texts was reduced. The authors of published research had become more like them, more ordinary. At the same time the students had become more like the researchers. For example the possibility of publication had been introduced during the teaching of the units and examples of students who had actually done so were given. The students in the focus group stated that they thought it quite feasible that they might seek to publish their work for other teachers. The units had made available to them - through modelling a critical/appreciative relation to the text, through the development of study and research skills, through the opportunity to take on the role of a researcher in a school - a new professional position, and a new aspect of their professional identity. This new relation had given them voice in a community of practice where previously they had felt they had no right to speak and space in relation to a previously restrictive authority (Povey and Angier 1998).

It is worth here making a distinction between what we might call legitimate and illegitimate authority. The former is authority accorded in relation to the academic virtues of scrupulous, careful and systematic enquiry and is assessed against criteria of quality intrinsic to the research process and assumed to be visible in the text. The latter is a result of factors other than those intrinsic criteria such as the fact of it being published, written by someone famous or endorsed by someone seen as an expert. There is evidence that the students had moved from according such illegitimate authority to wanting to accord legitimate authority as a result of assessing it for themselves. How far and in what way might this affect their practice? We would speculate that it is likely to have a significant effect in the longer term because it is a changed relation, a differently perceived location, and a different available professional identity. In the light of our conceptualisation of practice this changes everything although the changes may well take time to be fully appreciated because it takes time to appreciate the opportunities, dangers and implications of a new position. In this sense the present changes reported by the students will have future effects that are unpredictable.

Another recurrent theme in the data was the adoption by students of a more critical stance toward their own practice and assumptions. Some students explained the changes in the way they reflected on their work.

> *I think it made you think about questioning yourself, about what you are doing. I mean, like when we did the proposal we had to look and see, look at the validity of it and justify it and, when you're doing it now, it's made you think about justifying your own work and what you want to do. So I think it's quite helpful in that way. It's getting you to be more active and looking at what you are actually doing.*
> (Student in focus group)

These changes seemed related to the reports of an increase in confidence, which in some cases arose from the confirmation of their ideas by authoritative authors found in their reading,

> *It's quite rewarding though to sort of see that you have actually confirmed something that you believed anyway. So that gives you some sort of confidence that...some things that you might believe in in the future, that you might think, 'Well! You know! It could be true because I've believed in something before and I've actually proved myself correct so it's sort of boosting your self-confidence in a way.*
> (Student in focus group).

The self-confidence might also partly have come from being able to hold one's own in a collaborative peer group tackling the analysis of a paper. One mature student, talking of how the experience of her contribution being valued in the collaborative group had increased her confidence, said:

> *It did me a lot of good that.*

But what is the effect of increased confidence in these things on the professional practice of the students in school? It is arguable that the responses indicate that they will feel more able to make their own decisions and follow their own way. In addition the responses suggest that the basis of that relative autonomy is a process of self-questioning and rigorous justification i.e. how far they fulfil shared authoritative criteria, namely the academic virtues of scrupulous, careful and systematic enquiry. Such confidence is likely to affect each individual's practice in a way that is profound but unpredictable.

A further, unexpected, theme was the effect of taking a different role towards the children in school. In the present degree the students' experience is tightly focused on the vocational aim of being a good teacher and, in line with government policy over the last decade in England and Wales, this has meant an emphasis on craft skills or competencies deployed in the classroom. This means that students are constantly encouraged to adopt the role of the teacher in the sense of delivering a curriculum. Whenever they meet children as part of their course it is this aim that shapes their perceptions and is being assessed. Very rarely, if ever, do they talk or observe children without this relationship shaping their perceptions and responses. This is also fostered by the practically oriented tradition amongst teacher educators noted in the

account of the separation view on research and teaching at the outset of this paper. But the individual school based enquiry very often involved the students in an entirely different relationship with children. They listened and observed in order to understand rather than to teach. They were also enjoined to consider how to make the relationship respectful. As a result some reported changed views of children, their expectations of them and of their needs. This will affect their professional practice but again in a way that is difficult to trace in some simple or direct way.

Conclusion

We have identified ways in which students in this study perceived their experience of research as affecting their practice as beginning teachers. More generally we have argued that a holistic conception of teacher development is required that sees effects of research on practice as oblique, happening over long periods of time and as being profound. When this view is taken it is possible to conclude that there is evidence of effects on intentions towards practice, reasons for which can plausibly be traced to the experience of taking on the role of researcher.

Notes

1. This account is founded on a conception of social identity, and the practice associated with that identity, as essentially relational (Bourdieu and Wacquant 1992).

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Appendix 1. Summary of the individual profiles for 1998-99 interviewees

Paul

With his working class background he never thought of teaching, left school and joined the army. After his spell in the army he started afresh, worked in outdoor pursuits, where meeting students and others from different backgrounds led him to take a new view of himself and his potential. He went on an access course and then this teaching course, was motivated to learn and succeed, is now ready to start as a

beginning teacher. Although he is still trying different styles he has a sense of the sort of teacher he wants to be, based on a view of good teaching. Findings of his enquiry about pupils' perceptions in photos in geography (do they attend to physical or human features first?) had immediate implications for his practice in choosing & presenting resources but had also made him aware of his biases. During the interview had a dialogue with himself about whether the focus of the enquiry on a subject had limited potential for fostering wider reflection as a generalist primary teacher 'but … I think the process of being reflective, just thinking hard, isn't narrowed down to just one subject so I think it can be put to use elsewhere'. Sees himself as a reflective person – 'it's an individual thing tho all teachers will reflect to a certain extent - but I think sitting down in a research sense, I think most teachers won't do that because there's no need to do it, or is there, I don't know? It would be nice to think that we had the time and sort of reasons for reflecting deeply on different subjects when you're a teacher.'

Beverley
She had worked in the theatre before joining this course, where she specialised in Design&Technology. Talked of several features of her life that were significant for her identity as a teacher: previous work, sexuality, her commitment to 'all that sort of person, social stuff that is part of teaching.' She spoke of some tensions over the sort of teacher she would become (rather than the calm, consistent teacher she had admired 'I was just going to be like me as a teacher') and over relating her life experience to the specialist subject (which the enquiry work helped her develop). Gave vivid account of the 'fog of uncertainty' that qualitative research can entail. Identified substantial insights and gains from engaging in the research – reading and rereading, observing/listening closely to pupils, writing. Cited substantive insights into young children's abilities in her subject, implications for her teaching and for her practice and goals in general. Didn't think there would be much time for conducting personal research in her early career but saw reading research as important (Related back to her concerns about values, social and political aspects : 'You see in terms of stuff like around politics if I want to find out what it's like being black in the education system I have to read somebody else's experience so I would expect to be at data'.)

Adam
After working in finance he decided to train as a teacher as people became more important to him and work with children/young people 'kind of pushed me into teaching'. His Christianity was a strong element as a personal source of values, not evangelically. 'I see myself as somebody who is fundamentally there because I'm concerned for the well being of the children at the school I'm teaching in.' The course had been very rewarding and he'd learnt lots about himself as well as teaching. Reading research had revealed a whole world of academic research out there (and IT increased its availability) and made him a bit more critical as a reader. What he had read hadn't changed his view of himself as a teacher but he'd taken relevant bits on board. The research strand was 'way more satisfying' than other units because the enquiry topic was a personal choice. It dealt with attitudes and values to third world countries - which were linked to his view of what being a teacher entailed. During data collection he had realised how much more children have to say and how important it is to listen closely. He saw reading and small scale investigation as desirable for a teacher but difficult because there is so much going on.

Sarah

She had left school at 15 with an image of herself as not academic, but through working as a nursery nurse and with teachers began to believe she could become a teacher so took an access course. Remained uncertain of her own academic ability compared with school leavers, confidence grew when she got good results and now can define herself as a teacher. Also gained confidence in relation to knowledge, feels she can challenge published work. Clear identity as a teacher of young children grounded in practical experience, her own children and grandchild, 'I love that contact … I like to be down there among them' … ' enthusiastic, fun but questioning'. Has a view of herself as 'very committed … something I've worked for … I wouldn't just stop at half-past three or four o'clock'. Her enquiry about stereotypes in history had made her think about how she taught and will have a direct impact upon her practice). It was not a complete change in views as there was some continuity from her earlier work in nurseries where equal opportunities was 'one of the things you've got to deal with'. There were insights from unexpected pupil responses gained through the research 'but that makes you think … that's what it's about'. She expected to find time to go on reading when she was a teacher 'yes … I've learnt from this as well … I think you've got to … it's the only way to do it'

Katy

She came directly from a sixth form to the course, but with experience of working with young people and children, a big family and her was a father a lecturer. She had always been around children. 'So it's just that sort of environment I've been brought up in and I've gone straight into it'. Having seen many teachers in different contexts she had developed a picture of the sort of teacher she wants to be (but expects it to continue changing as she goes into different schools): 'effective teacher, not a social worker, but a teacher that can listen'. Her chosen topic for the enquiry grew out of an area she had always been interested in (reading strategies for bilingual pupils) which became focused as she reviewed literature and listened to children on teaching practice. 2.8 led her into it and made her aware of the research literature and gave her a critical stance. She anticipates the process of doing the enquiry and listening closely to pupils for miscue analysis alongside her reading will have effects on her teaching: 'it made me think about the way I'm going to approach reading as a teacher… implications for teaching, when I go into the classroom, the kind of texts that I look for, the amount of time that bilingual children need for me to be able to hear them read'. She saw the writing up of her dissertation as valuable and enjoyable- unlike some other assignments where, 'I mean to me I've felt there was no point … but with the dissertation I really did enjoy writing it … Because I'd discovered something new for me really…something I've always had in mind but I didn't know what … and then once I'd done the analysis, found my results, I'd learnt something … and I thought "even if I learn one thing out of this then that was valuable to me, one thing that I can take into the classroom would be more valuable"' She was (almost uniquely among this cohort) doing a Masters course next year, focusing upon the same research topic, before taking a teaching post..

Jacky

She came directly from school to the course, with a desire to teach in special education based on experience gained through her family and voluntary work, and after she went on to a post teaching mentally handicapped pupils. The course was not

a training for special education and she had valued the enquiry partly because it gave her an opportunity to focus upon that (through interviewing teachers on access to the science curriculum), because 'I got to go into schools I really wanted to go into and I was doing something I was really interested in and something that would be of help to me when I eventually started to teach so it was great … I loved it' and more generally 'because I had chosen what I wanted to do'. The structured reading and discussions had fostered more critical examination of articles and she had engaged with the 'conversation' in the literature. 'that was the first time I'd used a journal in the library and it was great because there were so many people saying things, because they were mostly teachers writing them and things like that, and they were saying things which I thought "oh yeah, I agree with that" or "where did he find that, I don't think that's right" you know, I was able to sort of compare it to what I knew.' Her comments were full of reference to enjoyment and purpose, contrasted with other assignments on the course, and she cited instances of how reading and data gathering had direct impact upon her future teaching (eg new ideas, assessment strategies, challenging her assumptions). However her emphasis on how valuable this had been for her practice was in contrast to her prediction that she did not expect to do much when she was in her teaching post: 'Well where I am, honestly, I don't think I'll ever read another thing again unless what I get through the post … I just don't think I'd ever go to the library again and research.' 'well this one was fantastic" (doing her own research project) but for practising teachers though it is important to see other practice there isn't time to research'.

Carol

She came directly from sixth form college and was specialising in early childhood and English. She had a clear picture of herself as teacher, as 'to do with your own characteristics really, you know, fun loving, really laid back … things like that that make the children and you get on' but also saw herself as hardworking and running a fairly structured classroom. Had seen a teacher 'who I'd love to be like … really calm all the time' 'that's my role model to look at, when I'm teaching I try and think of what she used to do'. She found 2.8 useful, especially the guided read - 'instead of just reading it and believing everything that you read, just to be critical really … I think that helped me a lot' especially as well when it came to doing her own inquiry which she enjoyed doing. 'I found it really useful to do, especially because it was an area that I chose to do, something I was interested in (phonological awareness and reading abilities) therefore I had the enthusiasm to carry it out from start to finish.' The process of investigating in the classroom and testing ideas in her own inquiry had immediate relevance 'because when I go into the classroom I'll be doing things like that every day'. More generally she described the impact of the research units as 'being critical really … whatever you see just being critical of it … that might not happen every time. … I think it's just being able to reflect on what you've seen and just be critical of it really.' 'not taking one thing as like this works so I'll do this all the time, you know just try out different things and it doesn't matter if it goes wrong because then you know that you don't need to try it that way again, just to keep trying different ways of teaching and ways of getting children to learn things.' She saw that reading research when she is a teacher will be helpful, but not easy to fit in, and 'once I am an experienced teacher I would hope I can carry out research in the classroom or whatever but again it all comes down to time'